3.3.7.5 Southern Dry Forest

3.3.7.5.1 Community Overview

Oaks are the dominant species in this upland forest community of dry sites. White oak and black oak are dominant, often with admixtures of northern red and bur oaks and black cherry. In the well-developed shrub layer, brambles (*Rubus* spp.), gray dogwood, and American hazelnut are common. Frequent herbaceous species are wild geranium, false Solomon's-seal, hog-peanut, and rough-leaved sunflower. This community type intergrades to oak woodland, which has similar canopy composition but a more open forest floor due to relatively frequent ground fires and possibly also due to grazing by elk, bison, or deer prior to EuroAmerican settlement.

3.3.7.5.2 Vertebrate Species of Greatest Conservation Need Associated with Southern Dry Forest

Seventeen vertebrate Species of Greatest Conservation Need were identified as moderately or significantly associated with southern dry forest (Table 3-153).

Table 3-153. Vertebrate Species of Greatest Conservation Need that are (or historically were) moderately or significantly associated with southern dry forest communities.

Species Significantly Associated with Southern Dry Forest
Birds
Whip-poor-will
Herptiles
Ornate Box Turtle
Black Rat Snake
Timber Rattlesnake
Mammals
Woodland Vole
Species Moderately Associated with Southern Dry Forest
Birds
Red-headed Woodpecker
Wood Thrush
Blue-winged Warbler
Worm-eating Warbler
Herptiles
Northern Prairie Skink
Western Worm Snake
Yellow-bellied Racer
Prairie Ringneck Snake
Bullsnake
Mammals
Northern Long-Eared Bat
Eastern Red Bat
Gray Wolf

In order to provide a framework for decision-makers to set priorities for conservation actions, the species identified in Table 3-153 were subject to further analysis. The additional analysis identified the best opportunities, by Ecological Landscape, for protection, restoration, and/or management of both southern

dry forest and associated vertebrate Species of Greatest Conservation Need. The steps of this analysis were:

- Each species was examined relative to its probability of occurrence in each of the 16 Ecological Landscapes in Wisconsin. This information was then cross-referenced with the opportunity for protection, restoration, and/or management of southern dry forest in each of the Ecological Landscapes (Tables 3-154 and 3-155).

- Using the analysis described above, a species was further selected if it had both a significant association with southern dry forest and a high probability of occurring in an Ecological Landscape(s) that represents a major opportunity for protection, restoration and/or management of southern dry forest. These species are shown in Figure 3-36.

Table 3-154. Vertebrate Species of Greatest Conservation Need that are (or historically were) *significantly* associated with southern dry forest communities and their association with Ecological Landscapes that support southern dry forest.

Southern Dry Forest	Birds (1)*	Herptiles (3)			Mammals (1)
Ecological Landscape grouped by opportunity for management, protection, and/or restoration of this community type	Whip-poor-will	Ornate Box Turtle	Black Rat Snake	Timber Rattlesnake	Woodland Vole
MAJOR					
Central Sand Hills					
Southeast Glacial Plains					
Western Coulee and Ridges					
IMPORTANT					
Central Sand Plains					
Southern Lake Michigan Coastal					
Southwest Savanna					
PRESENT (MINOR)					
Western Prairie					

Color Key

= HIGH probability the species occurs in this Ecological Landscape

= MODERATE probability the species occurs in this Ecological Landscape

= LOW or NO probability the species occurs in this Ecological Landscape

*** The number shown in parentheses is the number of Species of Greatest Conservation Need from a particular taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Greatest Conservation Need that met the criteria necessary for inclusion in this table.**

Table 3-155. Vertebrate Species of Greatest Conservation Need that are (or historically were) *moderately* associated with southern dry forest communities and their association with Ecological Landscapes that support southern dry forest.

Southern Dry Forest	Birds (4)*				Herptiles (5)					Mammals (3)		
Ecological Landscape grouped by opportunity for management, protection, and/or restoration of this community type	Red-headed Woodpecker	Wood Thrush	Blue-winged Warbler	Worm-eating Warbler	Northern Prairie Skink	Western Worm Snake	Yellow-bellied Racer	Prairie Ringneck Snake	Bullsnake	Northern Long-eared Bat	Eastern Red Bat	Gray Wolf
MAJOR												
Central Sand Hills	■	■	■				■		■	■	■	■
Southeast Glacial Plains	■	■	■				■			■	■	
Western Coulee and Ridges	■	■	■	■	■	■	■	■	■	■	■	
IMPORTANT												
Central Sand Plains	■	■	■				■	■	■	■	■	■
Southern Lake Michigan Coastal	■	■	■									
Southwest Savanna	■	■	■				■	■	■	■	■	
PRESENT (MINOR)												
Western Prairie	■	■	■		■		■					

Color Key

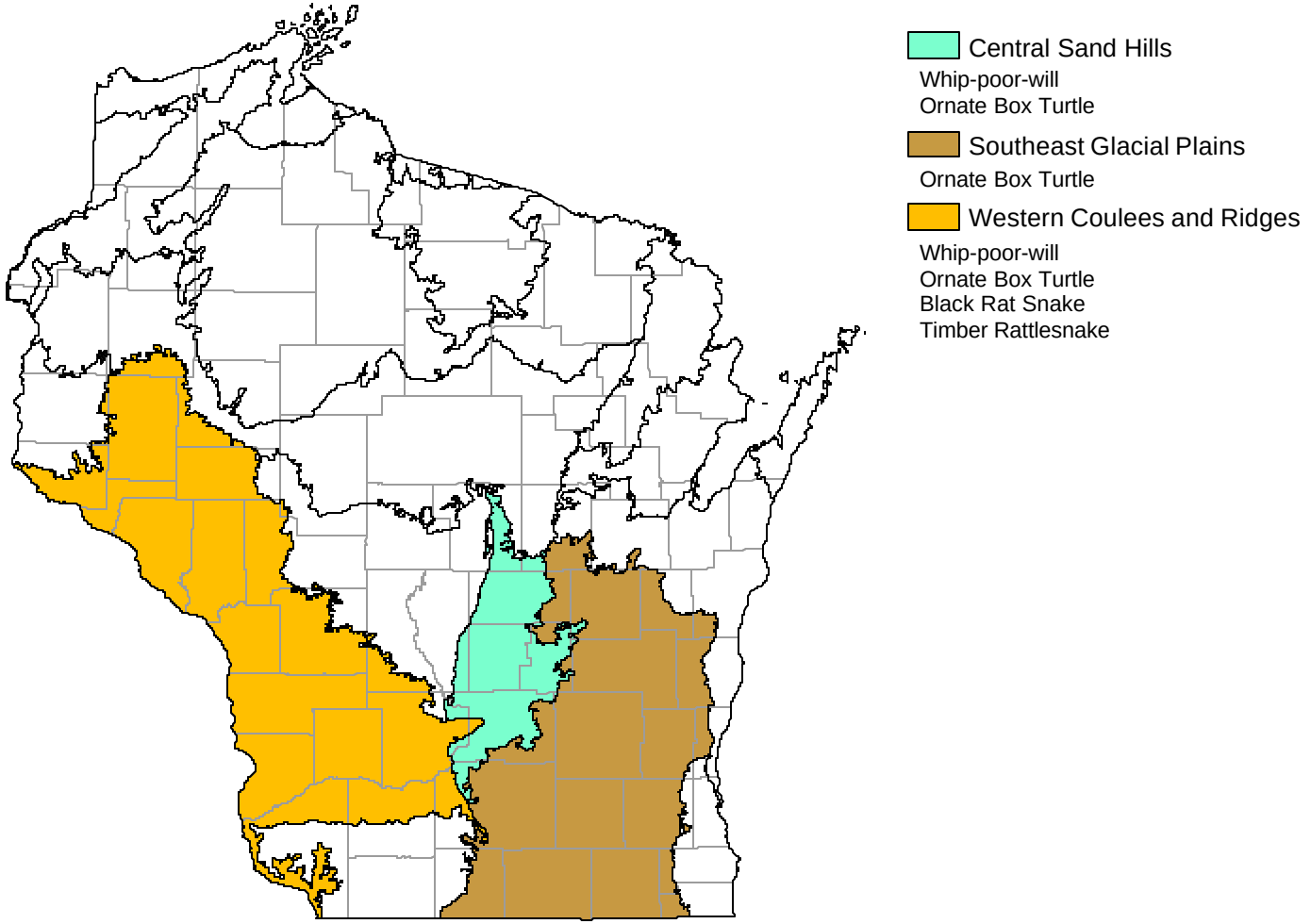
■ = **HIGH probability the species occurs in this Ecological Landscape**

■ = **MODERATE probability the species occurs in this Ecological Landscape**

□ = **LOW or NO probability the species occurs in this Ecological Landscape**

*** The number shown in parentheses is the number of Species of Greatest Conservation Need from a particular taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Greatest Conservation Need that met the criteria necessary for inclusion in this table.**

Figure 3-36. Vertebrate Species of Greatest Conservation Need that have *both* a significant association with southern dry forest *and* a high probability of occurring in an Ecological Landscape(s) that represents a major opportunity for protection, restoration and/or management of southern dry forest.



3.3.7.5.3 Threats and Priority Conservation Actions for Southern Dry Forest

3.3.7.5.3.1 Statewide Overview of Threats and Priority Conservation Actions for Southern Dry Forest

The following list of threats and priority conservation actions were identified for southern dry forest in Wisconsin. The threats and priority conservation actions described below apply to all of the Ecological Landscapes in Section 3.3.7.5.3.2 unless otherwise indicated.

Threats and Issues

- Oak is succeeding to brush (both native and non-native species), eastern red cedar (on sites with thin or sandy soils, and south to southwest facing slopes), and to boxelder, elms, black cherry, and red maple in other locations where soils are loamier.
- Both old and young forests of this type are lacking.
- Historic management and grazing has led to type conversion. Pine plantations have been established in many areas.
- Grazing continues to remove understory and hinder oak regeneration.
- High grading is prevalent in this community type, and is causing the type to decline.
- Farmland and rural development have historically fragmented this community type, creating scattered woodlots.
- Gypsy moth may impact this community type.
- Invasives (e.g., buckthorns, Asian honeysuckles) are a major problem in some areas, often preventing regeneration.
- High deer densities and other factors may be affecting oak regeneration.
- Lack of fire contributes to regeneration problems in oak and associated understory species.
- Tax policies may be encouraging grazing of oak woodlots.

Priority Conservation Actions

- Preserve remaining older oak forests and manage them to control invasives.
- Seek opportunities to develop and maintain larger, older blocks of oak forest, and connect existing blocks.
- Restore oak forests on appropriate sites. Manage in the context of oak forest, oak woodland, and savanna in a gradient from forest to native or surrogate prairie grasslands.
- Maintain the diversity of oak species, including black, white, bur, and northern red oaks as appropriate for the site.
- Develop landowner incentives to preserve or restore this community type.
- Encourage use of prescribed fire to regenerate southern dry forests, including the associated understory vegetation of this type. Develop educational tools and demonstration areas that promote benefits of prescribed fire, and address liability concerns. Follow existing management guidelines for prescribed fires to minimize impacts on sensitive species.
- Encourage sustainable forest community management practices and oak regeneration. Recognize that this community type is an early-to-mid-successional stage that will require active management to sustain. Use demonstration areas for the public and develop a practical "toolkit" for regenerating oak.
- Conduct further study of the structural and species variability within oak forests, woodlands, and savannas, and how to regenerate these types.
- Investigate factors that lead to conversion to central hardwood species, and limit such conversion where sites have the potential to support rare species and Species of Greatest Conservation Need.
- Develop cost sharing incentives for landowners to burn and/or regenerate oak forests and oak woodland.

- Reduce deer density.
- Continue and support research to find biocontrols for invasives. Use management practices that limit the spread of new invasives.

3.3.7.5.3.2 Additional Considerations for Southern Dry Forest by Ecological Landscape

Special considerations have been identified for those Ecological Landscapes where major or important opportunities for protection, restoration, and/or management of southern dry forest exist. Those considerations are described below and are in addition to the statewide threats and priority conservation actions for southern dry forest found in Section 3.3.7.5.3.1.

Additional Considerations for Southern Dry Forest in Ecological Landscapes with ***Major*** Opportunities for Protection, Restoration, and/or Management of Southern Dry Forest

Central Sand Hills

The highest current relative importance values for white, black, and bur oak are found here as compared with forest species in other Ecological Landscapes. Exemplary sites include the Lawrence Creek Headwaters Area (Adams County) and Hawk Hill in Lodi Marsh Wildlife Area (Dane County). There are significant opportunities to maintain and restore southern dry forest in this Ecological Landscape. Eastern white pine is regenerating in the understory of some sites. These areas near the tension zone often exhibit characteristics of northern and southern dry forest, and Central Sands pine-oak forest. This type historically may have alternated with eastern white pine on several-hundred year intervals.

Central Sand Plains

Dry forests (southern dry forest, northern dry forest, Central Sands pine-oak forest) are a major opportunity in this Ecological Landscape. These areas near the Tension Zone often exhibit characteristics of all three types. Important sites include Bear Bluff, Black River State Forest (Jackson County), Necedah National Wildlife Refuge (Juneau County), and Quincy Bluff (Adams County). Eastern white pine is regenerating in the understory of some sites; this type historically may have alternated with eastern white pine on several-hundred year intervals.

Southeast Glacial Plains

The most important sites exist in the Kettle Moraine State Forest and vicinity. Other quality sites include the White River Sedge Meadow and Prairie (Green Lake County) and the Hawa Oak Woods and Prairie (Waukesha County). Invasive shrubs such as common buckthorn and Asian honeysuckles are a major problem in the Ecological Landscape.

Western Coulees and Ridges

Important sites include Badlands (Sauk County), Kickapoo Reserve (Vernon County), and Fort McCoy (Monroe County). Sites subject to repeated high grading or grazing may convert to central hardwoods, but sites on steep southwest and south-facing slopes with sandy soils may convert to eastern red cedar. Private landowners should be worked with to encourage maintenance of oak forests and oak woodland, and to limit loss of oak due to gypsy moth.

Additional Considerations for Southern Dry Forest in Ecological Landscapes with ***Important*** Opportunities for Protection, Restoration, and/or Management of Southern Dry Forest

Southern Lake Michigan Coastal

There are limited opportunities in this Ecological Landscape, primarily for managing existing sites such as Bristol Park Woods (Kenosha County) and Waubeesee Woods (Racine County).

Southwest Savanna

Important sites include Blue Mound State Park (Iowa County), Browntown Oaks (Green County), and Weir White Oaks (LaFayette County).